

TGCC1 Series Capacitor Switching Contactor



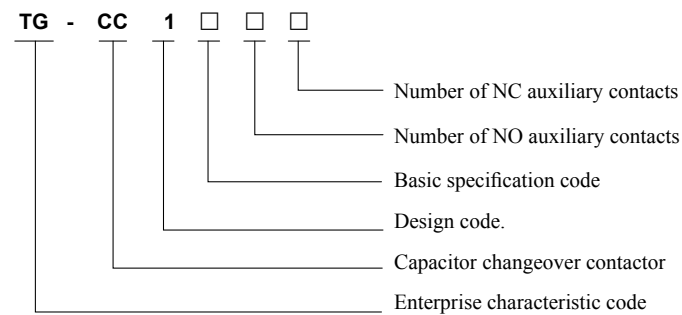
1 Product overview

TGCC1 series capacitor switching contactor (hereinafter referred to as contactor) is mainly used in AC 50Hz (or 60Hz) power system with a rated operating voltage up to 690V and with a controllable container capacity up to 50kvar under the AC-6b use category to power on and power off the parallel capacitor for improving the power factor.

This product complies with standard IEC 60947-4-1.

2 Type designation

2.1 Model description



2.2 TGCC1 capacitor switching contactor model table

| Spec. | Auxiliary contact | | Contact mark |
|-------------------|-------------------|------------------|-------------------|
| | NO Normal Open | NC Normal Closed | |
| TGCC1-25、32、43/11 | 1 | 1 | 13,14;31,32 |
| TGCC1-25、32、43/20 | 2 | - | 13,14;33,34 |
| TGCC1-25、32、43/02 | - | 2 | 21,22;31,32 |
| TGCC1-63/21 | 2 | 1 | 13,14;33,34;21,22 |
| TGCC1-63/12 | 1 | 2 | 13,14;21,22;31,32 |
| TGCC1-95/21 | 2 | 1 | 13,14;33,34;21,22 |
| TGCC1-95/12 | 1 | 2 | 13,14;21,22;31,32 |

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3 Main technical parameters

Operating characteristics:

Pull-in voltage: 85% $U_s \sim 110\% U_s$;

Release voltage: 20% $U_s \sim 75\% U_s$;

Rated control power voltage of coil, U_s :

AC: (50Hz) 110V, 220V, 380V, 400V, 415V; (50Hz/60 Hz) 110V, 220V, 380V, 400V, 415V;

| Model | | | TGCC1-25 | TGCC1-32 | TGCC1-43 | TGCC1-63 | TGCC1-95 |
|---|-----------|--------------|-------------------------------------|----------|----------|----------|----------|
| Rated insulation voltage U_i (V) | | | 690 | | | | |
| Rated withstand impulse voltage U_i (kV) | | | 6 | | | | |
| Rated working current (AC-6b) I_e (V) | | | 17 | 23 | 29 | 43 | 73 |
| Rated working voltage U_e (V) | | | 220V/230V、380V/400V、660V/690V | | | | |
| Free air resistive current I_{th} (A) | | | 25 | 32 | 43 | 63 | 95 |
| Controllable capacitor capacity Q_e kvar | 220V/230V | | 7 | 10 | 15 | 20 | 35 |
| | 380V/400V | | 12 | 20 | 25 | 35 | 50 |
| | 660V/690V | | 18 | 26 | 36 | 48 | 92 |
| Inrush current suppression capacity | | | 20 I_e | | | | |
| Operating frequency Times / h | | | 300 | | | | 120 |
| Electrical life (10000 times) | | | 15 | | | | 12 |
| Mechanical life (10000 times) | | | 100 | | | | |
| AC coil power | 50Hz | Pull-in (VA) | 70 | | | 200 | 250 |
| | | Hold (VA) | 6 ~ 8 | | | 13 ~ 20 | 23 ~ 30 |
| | | Power (W) | 1 ~ 3 | | | 4 ~ 8 | 6 ~ 10 |
| Auxiliary contact | | | AC-15:360VA DC-13:33W I_{th} :10A | | | | |

4 Normal operation and installation conditions

4.1 Ambient temperature: Working temperature limit: $-35^{\circ}\text{C} \sim +70^{\circ}\text{C}$; normal working temperature: $-5^{\circ}\text{C} \sim +40^{\circ}\text{C}$; the average value within 24 hours does not exceed $+35^{\circ}\text{C}$;

4.2 Installation conditions: The inclination between the mounting surface and the vertical surface is not greater than $\pm 22.5^{\circ}$, and the installation category is Class III;

4.3 Pollution level: 3

4.4 Altitude: Not more than 2000m

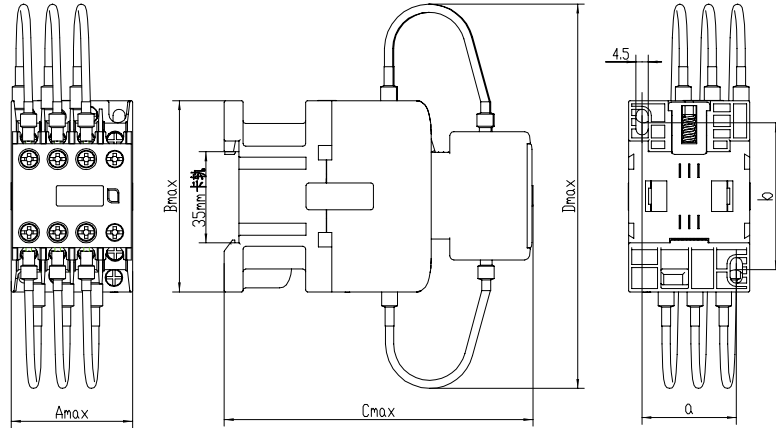
4.5 Atmospheric conditions: When the maximum temperature is $+70^{\circ}\text{C}$, the relative humidity of the air does not exceed 50%. Higher relative humidity is allowed at lower temperatures; for example, up to 90% at 20°C . Special measures should be taken for condensations occurred occasionally due to temperature changes;

4.6 The product should be installed and used in a place where there is no obvious shaking, impact or vibration.

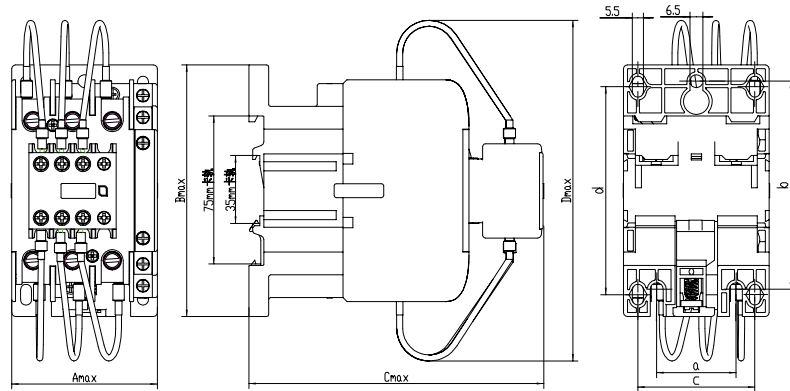
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5 Outline and installation dimensions

5.1 Contactor outline and installation dimensions



TGCC1-25 ~ 43 Contactor outline and installation dimensions



TGCC1-63 ~ 95 contactor outline and installation dimensions

Unit: mm

| Model | Amax | Bmax | Cmax | Dmax | a | b | c | d |
|----------|------|-------|------|------|----|-----------|----|---------|
| TGCC1-25 | 45 | 71 | 115 | 153 | 35 | 50/60 | - | - |
| TGCC1-32 | 56 | 82.5 | 129 | 158 | 35 | 48.2/73.5 | - | - |
| TGCC1-43 | 56 | 82.5 | 129 | 158 | 40 | 48.2/73.5 | - | - |
| TGCC1-63 | 73.5 | 127 | 149 | 196 | 40 | 100/110 | 59 | 100/110 |
| TGCC1-95 | 84.5 | 126.5 | 155 | 240 | 40 | 100/110 | 64 | 102/111 |

It is recommended to select SCPD and its fuse model according to type 1 coordinated protection

| Model & Spec. | TGCC1-25 | TGCC1-32 | TGCC1-43 | TGCC1-63 | TGCC1-95 |
|----------------------------------|-------------|-------------|-------------|-------------|--------------|
| Coordinated by main circuit | RT16-00 25A | RT16-00 40A | RT16-00 50A | RT16-00 80A | RT16-00 125A |
| Fuse model | | | | | |
| Coordinated by auxiliary circuit | RT16-00 10A | | | | |
| Fuse model | | | | | |

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5.2 Recommended wire cross-section and tightening torque of the terminal

| Model & Spec. | TGCC1-25 | TGCC1-32 | TGCC1-43 | TGCC1-63 | TGCC1-95 |
|--|----------|----------|----------|----------|----------|
| Coordinated by main circuit | | | | | |
| Flexible wire without terminal mm ² | 1 wire | 1-4 | 1.5-10 | 4-25 | 6-50 |
| | 2 wires | 1-4 | 1.5-6 | 4-16 | 6-25 |
| Flexible wire with terminal mm ² | 1 wire | 1-4 | 1-6 | 4-25 | 6-50 |
| | 2 wires | 1-2.5 | 1-4 | 4-10 | 6-16 |
| Hard wire without terminal mm ² | 1 wire | 1-4 | 1.5-6 | 4-25 | 6-50 |
| | 2 wires | 1-4 | 1.5-6 | 4-10 | 6-25 |
| Tightening torque N.m | | 1.2 | 1.8 | 5 | 9 |
| Control and auxiliary circuit wiring | | | | | |
| Flexible wire without terminal mm ² | 1 wire | 1-4 | | | |
| | 2 wires | | | | |
| Flexible wire with terminal mm ² | 1 wire | 1-2.5 | | | |
| | 2 wires | | | | |
| Hard wire without terminal mm ² | 1 wire | 1-4 | | | |
| | 2 wires | | | | |
| Tightening torque N.m | | 1.2 | | | |

6 Structure features

- 6.1 The contactor is a direct-acting double break point, and the contact system is arranged in two upper and lower layers, and there are three pairs of current limiting resistances on the upper layer to form an inrush current suppression device. After power-on, the contactor is first powered on and then the work contact is powered on after a few milliseconds, and permanent magnet in the current-limiting contact is released under the reaction of the spring to disconnect the current-limiting resistance allowing that the capacitor works normally.
- 6.2 The contactor features with small size, light weight, low power consumption, long life, safety, and reliability.
- 6.3 In addition to the mounting screws, TGCC1-25 ~ 43 can be mounted with 35mm standard rails, and TGCC1-63 ~ 95 can be installed with 35mm or 75mm standard rails.

7 Installation, operation and maintenance

- 7.1 Before installation, check whether the technical data (such as rated voltage and rated current) on the coil is consistent with the power supply. Please note that the two wiring marks A2 at different terminal indicate the same contact, and A1 and any of A2s can be selected when wiring.
- 7.2 The installation shall comply with the specified installation conditions, and the wiring terminal A1 of the coil shall face upwards in line with human visual habits. If multi-stranded wires are used when wiring TGCC1-63~95 products, a wiring terminal shall be provided.
- 7.3 Note the terminal marks when wiring: 1/L1, 3/L2, and 5/L3 are main circuit incoming terminals, and 2/T1, 4/T2, and 6/T3 are main circuit outgoing terminals; 21, 22 and 31, 32 are normal closed auxiliary terminals, and 13, 14 and 33, 34 are normal open auxiliary terminals.
- 7.4 After installation, the resistance wires between the phases must be separately if tangled, and arranged to prevent the terminal from breakage.
- 7.5 Tighten the wiring screws. After check that the wiring is correct, power on and off the coil with rated control power voltage several times with non-live main contact. The product can be put into operation only after all test actions are correct.
- 7.6 When the capacitor is closing, if the inrush current is too large out of the suppression capacity of this

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- contactor, the resistance may be burned out. At this time, the resistance can be replaced for further use.
- 7.7 The insulation voltage of the electrical appliance selected in the discharge device in the reactive power compensation equipment should be greater than $2U_e$ to avoid damage to the contactor due to the failure of discharge device.
- 7.8 Please note that this contactor cannot be used for jogging, otherwise the resistance wire will burn out.
- 7.9 Please tighten the terminals regularly and remove the deposited dust from the contactor.
- 7.10 No foreign objects fall into the product.

8 Order information

- 8.1 Please specify the following contents when ordering:
- Complete name and model of contactor.
 - Rated control power voltage and frequency of the coil.
 - Order quantity.
- 8.2 Order example:
- TGCC1-2511 capacitor switching contactor coil voltage 220V 50Hz 10 sets.